

WHAT IS CLAIMED IS:

1. Pulse magnetron which is pulsed for oscillation comprising:

5 an anode having a number of vanes mounted radially on the inner wall of a cylindrical anode shell thereof;

a cathode provided at the center of the anode to face the inner end of each vane; and

10 a pair of pole pieces provided for applying a magnetic field substantially in parallel to the cathode across an interaction space defined between the outer side of the cathode and the inner ends of the vanes;

wherein a radius r_a of the inscribed circle defined by the inner ends of the vanes and a radius r_c of the cathode surface are determined
15 by equation (1);

wherein said radius r_a and radius r_c are measured at a point where the magnetic flux density is maximum along the axial direction of the cathode and the height of the vanes;

20 wherein the anode and the cathode are arranged to satisfy at least either (i) increasing the radius of the inscribed circle defined by the inner ends of the vanes or (ii) decreasing the radius of the cathode surface as the magnetic flux density is declined along the axial direction of the cathode and the height of the vanes;

wherein the equation (1) is represented as follows:

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$$V_a = 942(r_a^2 - r_c^2)(10^4 b - 10650 / n\lambda) / n\lambda \quad (1)$$

where V_a is the pulsed anode voltage (in V), r_a is the radius of the anode (the radius in cm of an inscribed circle defined by the inner ends of the vanes), r_c is the radius of the cathode surface (in cm), b is the minimum of the magnetic flux density T along the axis of the interaction space, n is the (number of divisions (the number of the vanes))/2, and λ is the oscillation wavelength (in cm).